WHAT IS CLAIMED IS:

1. An electronic pressure sensitive transducer producing an electrical signal indicative of applied pressure, the transducer comprising:

a printed circuit board accepting a plurality of electronic elements for processing the transducer electrical signal;

a plurality of conductive traces formed on the printed circuit board to define a contact area;

a flexible substrate having an inner surface positioned over the contact area;

an adhesive spacer substantially surrounding the contact area, the adhesive spacer attaching the flexible substrate to the printed circuit board; and

at least one resistive layer deposited on the flexible substrate inner surface, the resistive layer contacting at least two of the traces in response to pressure applied to the flexible substrate to produce the electrical signal indicative of applied pressure.

2. An electronic pressure sensitive transducer as in claim 1 wherein at least one resistive layer comprises resistive ink.

3. An electronic pressure sensitive transducer as in claim 1 further comprising a pedestal formed on the printed circuit board substantially around the contact area, the pedestal receiving the adhesive spacer.

4. An electronic pressure sensitive transducer as in claim 3 wherein the pedestal comprises conductive traces covered with a non-conductive material.

5. An electronic pressure sensitive transducer as in claim 1 wherein the plurality of conductive traces comprise:

an interconnected set of common traces extending into each zone.

6. An electronic pressure sensitive transducer as in claim 5 wherein at least one interconnected set of traces is connected to the electronic elements for processing the transducer electrical signal via a through-hole in the printed circuit board.

7. An electronic pressure sensitive transducer as in claim 6 wherein the through-hole is within the contact area.

8. An electronic pressure sensitive transducer as in claim 1 wherein conductive traces are arranged in interconnected sets, with at least two sets of traces interdigitated.

9. An electronic pressure sensitive transducer as in claim 1 wherein conductive traces comprise copper traces covered with an oxidation preventing conductive material.

10. An electronic pressure sensitive transducer as in claim 1 wherein conductive traces comprise screen printed carbon ink.

11. A method of forming an electronic pressure sensitive transducer on a printed circuit board, the printed circuit board accepting a plurality of electronic components for processing signals generated by the pressure sensitive transducer, the method comprising:

forming a plurality of conductive traces on the printed circuit board to form a contact area;

depositing at least one resistive layer on an inner side of a flexible substrate; and

assembling the flexible substrate on the printed circuit board such that the flexible substrate resistive layer is facing the printed circuit board conductive traces, the flexible substrate held to the printed circuit [illegible]

12. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 11 wherein at least one resistive layer comprises resistive ink.

13. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 11 wherein assembling comprises screen printing the adhesive on at least one of the flexible substrate and the printed circuit board.

14. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 11 further comprising forming a pedestal on the printed circuit board substantially around the contact area, the adhesive contacting the pedestal when assembled.

15. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 14 wherein forming a pedestal comprises forming traces on the printed circuit board in the shape of the pedestal and covering the pedestal traces with a non-conducting material.

16. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 15 wherein the traces forming the pedestal are formed in the same process as the traces forming the contact area.

17. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 11 wherein the plurality of conductive traces are formed as a plurality of sets of zonal traces, each set of zonal traces interconnected within a zone of the contact area, and as an interconnected set of common traces extending into each zone.

18. A method of forming an electronic pressure sensitive

interconnected traces interdigitated within the contact area.

19. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 11 wherein forming a plurality of conductive traces comprises depositing an oxidation preventing conductive material over copper traces.

20. A method of forming an electronic pressure sensitive transducer on a printed circuit board as in claim 11 wherein forming a plurality of conductive traces comprises screen printing a carbon ink.

21. A printed circuit board electronic pressure sensitive transducer assembly comprising:

a printed circuit board accepting a plurality of electronic elements for processing pressure transducer electrical signals;

a plurality of conductive traces formed on the printed circuit board to define a contact area;

a flexible substrate having an inner surface positioned over the contact area;

an adhesive spacer substantially surrounding the contact area, the adhesive spacer attaching the flexible substrate to the printed circuit board; and

at least one resistive layer comprising a resistive ink deposited on the flexible substrate inner surface, the resistive layer contacting at least two of the contact area conductive traces in response to pressure applied to the flexible substrate.

22. A printed circuit board electronic pressure sensitive transducer assembly as in claim 21 further comprising a pedestal formed on the printed circuit board, the pedestal substantially surrounding the contact area, the pedestal receiving the adhesive spacer.

with a non-conductive material, the conductive material formed on the printed circuit board.

24. A printed circuit board electronic pressure sensitive transducer assembly as in claim 21 wherein the plurality of conductive traces comprise:

a plurality of sets of traces, each set of traces interconnected within a zone of the contact area; and

an interconnected set of common traces extending into each zone.

25. A printed circuit board electronic pressure sensitive transducer assembly as in claim 24 wherein at least one interconnected set of traces is connected to the electronic elements for processing the transducer electrical signal via a through-hole in the printed circuit board.

26. A printed circuit board electronic pressure sensitive transducer assembly as in claim 25 wherein the through-hole is within the contact area.

27. A printed circuit board electronic pressure sensitive transducer assembly as in claim 21 wherein conductive traces are arranged in interconnected sets, with at least two sets of traces interdigitated.

28. An electronic pressure sensitive transducer as in claim 21 wherein the adhesive spacer comprises adhesive ink.

29. A printed circuit board electronic pressure sensitive transducer assembly as in claim 21 wherein conductive traces comprise copper traces covered with an oxidation preventing conductive material.

30. A printed circuit board electronic pressure sensitive transducer assembly as in claim 21 wherein conductive traces comprise screen printed carbon ink

31. A printed circuit board electronic pressure sensitive transducer assembly comprising:

a printed circuit board accepting a plurality of electronic elements for processing pressure transducer electrical signals;

a plurality of conductive traces formed on the printed circuit board to define a contact area;

a pedestal substantially surrounding the contact area, the pedestal forming a flat area higher than the conductive traces;

a flexible substrate having an inner surface positioned over the contact area;

an adhesive spacer substantially surrounding the contact area, the adhesive spacer attaching the flexible substrate to the pedestal; and

at least one resistive layer deposited on the flexible substrate inner surface, the resistive layer contacting at least two of the contact area conductive traces in response to pressure applied to the flexible substrate.

32. A printed circuit board electronic pressure sensitive transducer assembly as in claim 31 wherein the pedestal is formed by depositing a non-conductive layer over a conductive layer, the conductive layer formed on the printed circuit board.

33. An electronic pressure sensitive transducer as in claim 31 wherein at least one resistive layer comprises resistive ink.

34. An electronic pressure sensitive transducer as in claim 31 wherein the adhesive spacer comprises adhesive ink.

35. A printed circuit board electronic pressure sensitive transducer assembly as in claim 31 wherein the plurality of conductive traces comprise:

a plurality of sets of traces, each set of traces interconnected within a zone of the contact area; and

36. A printed circuit board electronic pressure sensitive transducer assembly as in claim 35 wherein at least one interconnected set of traces is connected to the electronic elements for processing the transducer electrical signal via a through-hole in the printed circuit board.

37. A printed circuit board electronic pressure sensitive transducer assembly as in claim 36 wherein the through-hole is within the contact area.

38. A printed circuit board electronic pressure sensitive transducer assembly as in claim 31 wherein conductive traces are arranged in interconnected sets, with at least two sets of traces interdigitated.

39. A printed circuit board electronic pressure sensitive transducer assembly as in claim 31 wherein conductive traces comprise copper traces coated with an oxidation preventing conductive material.

40. A printed circuit board electronic pressure sensitive transducer assembly as in claim 31 wherein conductive traces comprise screen printed carbon ink.

41. A method of forming a printed circuit board electronic pressure sensitive transducer assembly comprising:

forming on the printed circuit board a plurality of conductive traces to form a contact area;

forming on the printed circuit board a plurality of conductive traces connecting the contact area with conductive pads for receiving electronic elements, the electronic elements processing pressure transducer signals;

soldering the electronic elements to the printed circuit board conductive pads;

printing a resistive layer on a flexible substrate;

printing an adhesive

assembling the flexible substrate on the printed circuit board by contacting the adhesive with the printed circuit board such that the resistive layer faces the contact area.

42. A method of forming a printed circuit board electronic pressure sensitive transducer assembly as in claim 41 further comprising forming a raised pedestal on the printed circuit board substantially surrounding the contact area, the pedestal contacting the adhesive layer.

43. A method of forming a printed circuit board electronic pressure sensitive transducer assembly as in claim 42 wherein the pedestal is formed by forming conductive material on the printed circuit board and depositing non-conductive material on the conductive material.

44. A method of forming a printed circuit board electronic pressure sensitive transducer assembly as in claim 43 wherein the traces forming the pedestal are formed in the same process as the traces forming the contact area.

45. A transducer system comprising:

a printed circuit board having a plurality of conductive traces, at least two of the traces defining each of a plurality of contact areas, the printed circuit board accepting electronic elements for processing electrical signals produced by a plurality of transducers, each signal indicative of pressure applied to at least one of the transducers;

at least one flexible substrate having an inner surface, one flexible substrate inner surface facing each contact area;

at least one adhesive spacer substantially surrounding each contact layer, each adhesive spacer attaching at least one flexible substrate to the printed circuit board; and

at least one resistive layer deposited on the at least one flexible substrate inner surface [illegible]

wherein the plurality of contact areas, the at least one flexible substrate, the at least one adhesive spacer and the at least one resistive layer form the plurality of transducers, each transducer constructed on the printed circuit board.

46. A transducer system as in claim 45 wherein the at least one flexible substrate is a single substrate.

47. A transducer system as in claim 45 wherein the at least one adhesive spacer is a single adhesive spacer.

48. A transducer system as in claim 45 further comprising at least one pedestal formed on the printed circuit board substantially around at least one contact areas, the pedestal receiving at least one adhesive spacer.

49. A transducer system as in claim 48 wherein the at least one pedestal is a single pedestal formed substantially around all of the plurality of contact areas.

50. A transducer system as in claim 48 wherein the at least one pedestal comprises conductive traces covered with a non-conductive material.

51. A transducer system as in claim 45 wherein conductive traces defining at least one contact area comprise copper traces covered with an oxidation preventing conductive material.

52. A transducer system as in claim 45 wherein conductive traces defining at least one contact area comprise screen printed carbon ink.

53. A method of forming an electronic pressure sensitive transducer on a printed circuit board supporting electronic elements, the transducer

conductive traces in a contact area on the printed circuit board when pressure is

applied to an outer side of the flexible substrate, the transducer further having a pedestal formed substantially around the contact area, the printed circuit board further having conductive traces connecting the electronic elements to the contact area, the method comprising:

depositing conductive material on the printed circuit board; and

selectively removing a portion of the deposited conductive material to define the traces in the contact area, the traces connecting the electronic elements to the contact area, and at least a portion of the pedestal.